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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,683	12/03/2001	Wolfgang Glaeser	P67314US0	9513

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,683

Applicant(s)

GLAESER, WOLFGANG

Examiner

Kallambella Vijayakumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/14/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Acknowledge the Amendment and Response filed 01/14/2004 in response to office action mailed 08/20/2003. Acknowledge the canceling of claims 1-7 and addition of new claims 8-12.
2. Applicant's arguments filed 01/14/2004, with respect to the rejection(s) of claim(s) 1-7 under 102(b)/103(a) have been fully considered and moot in view of the amendment to the claims.
3. Applicant's arguments filed 01/14/2004, with respect to the rejection(s) of claim(s) have been fully considered in view of the new claims, but they are not persuasive in overcoming the rejections over claims 8-11.
4. The following rejections have been maintained:

- **Briefly, applicants claim:**

"A mixture of metal and/or alloy particles and a liquid electrolytic medium" with certain broad limitations of:

- (i). "Volume of the electrolytic medium being *approximately corresponding to* the spaces between the particles in dry packing",
 - (ii) "Volume of mixture is *equal to or larger than* the volume of the dry packing of metal and/or alloy particles, and
 - (iii) "Mixture exhibits a direct contact between *almost all of the particles*" in the independent claim.
- Applicants argue, *"The amount of liquid electrolytic medium is equal to or little larger than the volume of dry packing of the metal and/or alloy particles"*.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8 the phrases “approximately”, “larger” and “almost all” render the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by “approximately”, “larger” and “almost all”), thereby rendering the scope of the claim(s) unascertainable. It can not be ascertained what is encompassed by the phrases “approximately”, “larger” and “almost all”, specification does not provide any guidance to determine what value are included and what values are excluded, and one ordinary skilled in the art would not be able apprise the boundaries of the limitations of instant claims by the applicants. See MPEP § 2173.05(d).

Applicants have not provided any arguments in support of those these phrases and further assert that they have been removed from the amended/new claims and that is not correct.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 8-10 are rejected under 35 U.S.C. 102(b) as anticipated by Hitachi (JP 50-032,437).
 - Hitachi teaches a Zn-electrolyte paste comprising a blend of Zn powder, CMC and a liquid electrolyte of 30% KOH containing 0.01% mercapto-propionic acid. Hitachi does not disclose the specific volume of the liquid electrolyte in the paste, but the Hitachi's paste for the battery would inherently meet the limitation of "the volume of electrolytic medium approximately corresponds to the spaces between the particles in dry packing" and "the volume of the mixture is equal to or larger than the volume of dry packing of metal and/or alloy particles" and "mixture exhibits a direct contact between almost all particles" in claims 8 and 10. The addition of a gelling agent to the electrolytic medium in claim-9 would be anticipatory. Although, applicants argue that Hitachi describes an alkaline battery using the paste composition, the type of battery is not the limitation of the instant claims. All the limitations of the instant claims are met.
 - The reference is anticipatory.

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2. Claims 8-10 are rejected under 35 U.S.C. 102(b) as anticipated by Warszawski (US Patent # 4,172,924).

- Warszawski et al disclose the following features for their electrolyte paste comprising of Zn powder, liquid electrolyte of KOH and a gelling agent. Warszawski disclose the metal powder concentration being close to the maximum for the grains and the quantity of electrolyte in the paste being about the quantity necessary to fill the spaces between the grains and to ensure ionic transfer, that would meet the electrolyte volume limitations and direct contact between the particles in the instant claim-8 (Col-4, Lines: 34-47). The disclosure by Warszawski et al (Col-5, Lines: 15-18; 61-63; Col-6, Lines: 1-8, 26-45; Col-9, Lines: 45-53; Col-11, Lines: 6-13) disclose the variation of CPVC and the use of gelling agent would further inherently meet the electrolyte volume to the inter particle volume in the instant claim-8 by the applicants, and the gelling agent would meet the limitation of instant claim-9. All the limitations of the instant claims are met.
- The reference is anticipatory.
- Applicants argue that the type of the battery disclosed by Warszawski is quite different from that of applicants, which is not the limitation of the instant claims and the arguments are moot.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi (JP 50-032,437) in view of Tada et al (JP 04-284,357).
- The disclosure by Hitachi et al on the Zn powder-30% KOH paste is set forth as disclosed above in Rejection-1 Under USC 102.
 - Hitachi does not disclose the use of zinc or its alloy with a bulk density lower than 2.8 g/ml.
 - Tada et al disclose an alkaline battery comprising of In doped Zn powder with a bulk specific gravity of 0.29 to 3.5 g/cc with improved contact between the alloy powder particles, providing excellent corrosion resistance and discharge performance in a battery (Abstract).

- Hitachi teaches the making of battery using a paste comprising of Zn-30% KOH. In the analogous art Tada teaches the benefits of using low-density Zn alloy powders in the batteries. It would have been obvious to one of ordinary skill in the art to modify the composition of Hitachi by incorporating Zn alloys of Tada to benefit from improved performance, because Tada teaches the benefits of low bulk density Zn alloys in the batteries and both the teachings are in the analogous art, and with the expectation of reasonable success to obviously arrive at the limitations of the instant claims by the Applicants.
- Applicants argue that it would not be possible to have requisite volume of electrolyte per the limitations of the applicants and a good performance of the battery, when the density of the Zn Alloy is 3.5 g/ml. However, the range of density values for Zn alloys overlaps over the limitations of instant claim-11 wherein the liquid electrolyte volumes would be obvious and the argument is moot.
- In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both the references teach about the Zn-batteries..

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2. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warszawski (US Patent # 4,172,924) in view of Yasumura et al (JP 10-032,002).

- The disclosure by Warszawski et al on the formulation of zinc-KOH electrolyte paste is set forth as above in rejection under USC 102.
- Warszawski et al do not disclose the use of zinc or its alloy with a bulk density lower than 2.8 g/ml per the limitation of the instant claim -11 by the applicants.
- Yasumura disclose a negative electrode for an alkaline battery comprising of Zinc alloy powder with an apparent bulk density of 0.5-2.45 g/cc, 40% KOH solution containing saturated ZnO and a gelling agent with improved performance.
- Warszawski et al teach the making of battery a paste comprising of Zn/Liquid electrolyte and gelling agent and optimization of the amount of liquid electrolyte volume to improve the performance of the battery. In the analogous art Yasumura et al teach the benefits of using low bulk density Zn alloy powder to improve the battery performance and its advantages. It would be obvious to one of ordinary skill in the art to modify the paste composition of Warszawski et al by incorporating the low bulk density zinc alloy powders of Yasumura to benefit from better corrosion resistance and discharge performance, because both the teachings are in the analogous art and with the expectation of reasonable success in obviously arriving at the limitations of instant claims by the applicants.
- In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is

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some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both the references teach about the Zn-batteries.

Allowable Subject Matter

- Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record teaches making of the paste comprising of zinc/metal, electrolyte and a binder, while it does not disclose nor fairly suggestive of a process wherein a excess electrolyte is sucked off from a mixture comprising of excess electrolyte, after the mixture being dosed into a system meeting the limitations of the instant claims by the applicants.

Conclusion

- **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kmv
March 20, 2004


Mark Kopec
Primary Examiner